

FISHERY MANAGEMENT PLAN  
FOR THE  
RED AND BLUE KING CRAB COMMERCIAL FISHERY  
IN THE PRIBILOF DISTRICT OF THE BERING SEA, 1999

by

Rance Morrison

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## **AUTHOR**

Rance Morrison is the Bering Sea and Aleutian Islands Area Shellfish Management Biologist, Alaska Department of Fish and Game, Division of Commercial Fisheries, P.O. Box 920587, Dutch Harbor, Alaska, 99692.

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## INTRODUCTION

This fishery management plan is intended to provide a brief overview of the red and blue king crab fishery which occurs annually in the Pribilof District of the Bering Sea. Information on general area description, brief historic fishery review, and summary of current management practices and policies should provide fishers and members of industry a better understanding of how the Alaska Department of Fish and Game (ADF&G) manages this area.

### *Description of Districts and Statistical Areas*

The Bering Sea king crab registration Area Q, includes all waters north of Cape Sarichef, south of Point Hope, and east of the U.S./Russian Convention Line of 1867. The area excludes those waters which are south of the latitude of Cape Newenham at 58° 39' N. lat. and east of 168 W. long. (the Bristol Bay king crab management area) and those waters south of 55°30' N. lat. and west of 171° W. long. (the Aleutian Islands king crab management area). Area Q is separated into the Pribilof and Northern Districts. The Pribilof District includes all waters of Registration Area Q south of the latitude of Cape Newenham (Figure 1). The Pribilof District is further divided into statistical areas, each encompassing one degree of longitude by one half degree of latitude (Figure 2). All commercial harvest of red and blue king crabs are reported to the ADF&G in reference to these statistical areas. Detailed descriptions of districts and sections of the Bering Sea are set out in the commercial shellfish regulations (ADF&G 1999).

### *Historical Fishery Perspective*

The first king crab harvest from the Pribilof District occurred in 1973, when eight vessels landed 1.2 million pounds of blue king crabs. The harvest peaked in 1980, when 110 vessels landed 10.9 million pounds of blue king crabs. The Pribilof District is open to the harvest of both red and blue king crabs, however prior to 1993 the commercial harvest was almost exclusively blue king crabs. Due to declining stock abundance, the area was closed to commercial red and blue king crab fishing between 1988 and 1992.

In 1993, survey results indicated blue king crab stocks remained depressed but showed a harvestable surplus of red king crabs. As a result, the area opened to the first directed commercial harvest of red king crabs in the history of this area. The king crab harvest was limited to red king crabs until the 1995 season when survey results indicated a harvestable surplus of both red and blue king crabs. That year the area opened with a combined species Guideline Harvest Level (GHL) of 2.5 million pounds; 2.2 million pounds were actually harvested.

Since reopening in 1993, the GHL has ranged from 1.25 to 3.4 million pounds (Table 1). During this time the harvest has consistently failed to achieve the GHL.

## REGULATIONS

The Pribilof District is a *nonexclusive* king crab registration area. This means that in a king crab registration year (June 28 to June 27 of the following year), a king crab vessel may be registered to take the same species of king crab in one or more nonexclusive king crab registration areas and registered to take the same species of king crab for one king crab exclusive registration area, but may not be used to take the same species of king crab in any superexclusive king crab registration area or in more than one exclusive king crab registration area. Regulations governing commercial king crab fisheries in the Bering Sea, including the Pribilof District red and blue king crab fishery, begin with 5 AAC 34.900 DESCRIPTION OF REGISTRATION AREA Q, on page 153 of the 1999-2000 Commercial Shellfish Regulations booklet. For additional information on regulations pertaining to Bering Sea king crab fishing, contact the ADF&G office in Dutch Harbor or Kodiak.

### *Fishing Seasons, Pot Limits and Legal Gear*

The Pribilof District red and blue king crab fishery opens annually on September 15, concurrent with the blue king crab fishery in the Saint Matthew Island Section of the Northern District. The area is closed by emergency order when the GHL is achieved or when stock conditions, such as poor fishery performance or excessive by catch of small or female crabs, indicate a closure is necessary to protect the long term health of these stocks.

Pot limits for the Pribilof District of the Bering Sea are 50 pots for vessels over 125 feet overall and 40 pots for vessels equal to or less than 125 feet overall as described in 5 AAC 34.925(e)(1) **LAWFUL GEAR FOR REGISTRATION AREA Q**. To ensure compliance with pot limit regulations, the main or trailer buoy on each pot must display one fishery specific identification tag for the current year according to 5 AAC 34.051 (b) and (c) **KING CRAB GEAR MARKING REQUIREMENTS** and 5 AAC 34.926 (a) **KING CRAB POT MARKING REQUIREMENTS FOR REGISTRATION AREA Q**. All pots must be tagged at the time of tank inspection and remain tagged throughout the fishery. Buoy tags are available for \$2.00 each from the ADF&G office in Dutch Harbor or Kodiak. Buoy tags for the Pribilof District red and blue king crab fisheries are normally available in Dutch Harbor by August 20 and in Kodiak by September 1st.

Buoy tags lost during the season may be replaced according to provisions of 5 AAC 34.926 (b) **KING CRAB POT MARKING REQUIREMENTS FOR REGISTRATION AREA Q**, which states that replacement of lost tags is permitted if the vessel operator and three crew members submit statements, in person, to the ADF&G office in Dutch Harbor, describing how tags were lost and listing the number of each lost tag.

Legal gear for the commercial red and blue king crab fishery in the Pribilof District is confined to king crab pots, as defined in 5 AAC 34.050 **LAWFUL GEAR FOR KING CRAB**. In addition, each king crab pot fished for red or blue king crabs in the Pribilof District must have at least one-third of one vertical surface of the pot composed of not less than nine-inch stretched mesh webbing according to provisions of 5 AAC 34.925(b) **LAWFUL GEAR FOR REGISTRATION AREA Q**. All pots must also be marked according to 5 AAC 34.051 (a) **KING CRAB GEAR MARKING**

REQUIREMENTS and be equipped with a biodegradable escape mechanism as described in 5 AAC 39.145 (1) or (2) ESCAPE MECHANISM FOR SHELLFISH AND BOTTOMFISH POTS.

### ***Registration and Tank Inspections***

In addition to vessel registration requirements with the Commercial Fisheries Entry Commission listed under 5 AAC 39.120 REGISTRATION OF COMMERCIAL FISHING VESSELS, the operator of a vessel used to take king crabs in any Bering Sea king crab fishery must first obtain a shellfish registration certificate from the ADF&G according to provisions of 5 AAC 34.020 KING CRAB AREA REGISTRATION. In order for the shellfish vessel registration to be valid, a vessel must first undergo an inspection of all holds and/or live tanks by a department representative as specified in 5 AAC 34.030 INSPECTION REQUIREMENTS. Vessels which participate in the Pribilof District red and/or blue king crab fishery are required to register and have their holds inspected in Dutch Harbor, Akutan, King Cove or St. Paul Island beginning 24 hours prior to the start of the season according to provisions of 5 AAC 34.940 REGISTRATION AREA Q INSPECTIONS AND INSPECTION POINTS.

United States Coast Guard (USCG) personnel now accompany ADF&G personnel during tank inspections. USCG representatives board vessels and review stability requirements and certified letters of stability to ensure the number of pots carried by a vessel does not exceed that vessel's stability requirements. Questions regarding the Coast Guard's stability checks should be addressed to: Lieutenant Commander Steve P. McCleary, Marine Safety Detachment, USCG, Dutch Harbor, (907) 581-3468.

### ***Landing and Pot Storage Requirements and Legal Size Limits***

As outlined in 5 AAC 34.941 (a)(2)(A) LANDING REQUIREMENTS FOR REGISTRATION AREA Q, vessels fishing in the Pribilof District red and/or blue king crab fishery must be at their chosen processing location within 24 following the season closure if delivery is made to processors within the district or to processors in Dutch Harbor or Akutan. Vessels delivering to the port of King Cove or further east must get an extension of time to transit directly to the point of processing by contacting an ADF&G representative in Dutch Harbor within the 24 hours following the closure, according to provisions set out in 5 AAC 34.941(b) LANDING REQUIREMENTS FOR REGISTRATION AREA Q.

During a closed season, king crab pots must be removed from the water. However, king crab pots may be stored in some areas in waters less than 25 fathoms and in waters of the Pribilof District deeper than 25 fathoms for 72 hours following the closure of the king crab fishery in that district, according to provisions in 5 AAC 34.052 KING CRAB GEAR STORAGE REQUIREMENTS. Additional king crab pot storage is provided around the Pribilof Islands in waters less than 25 fathoms from September 1 through May 31 (see regulation 5 AAC 34.927 (c) KING CRAB POT STORAGE REQUIREMENT FOR REGISTRATION AREA Q).

The legal minimum size of red and blue king crabs which can be harvested in the Pribilof District is six and one-half inches according to 5 AAC 34.920 (a) SIZE LIMITS FOR REGISTRATION AREA Q. Only male red and blue king crabs may be legally harvested.



## HARVEST STRATEGY AND GUIDELINE HARVEST LEVEL

The harvest strategy developed for Pribilof District blue king crabs is outlined in Harvest Strategy for Kodiak and Bristol Bay Red King Crab and St. Matthew Island and Pribilof Blue king Crab (Pengilly and Schmidt 1995) as follows:

“ This harvest strategy controls the removal of mature male king crabs from the stock during a commercial harvest. The harvest strategy uses thresholds, a 20% mature male harvest rate, and a maximum allowable legal male harvest rate of 60% to determine a targeted legal male harvest rate in a statistical area, district, or section. If preseason abundance estimates indicate that threshold criteria are not met, the legal male harvest rate is set to 0%--that is, the fishery is closed entirely. When threshold criteria are met, the 20% mature male harvest rate determines the target number of legal males to harvest, up to the maximum of 60% of the estimated number of legal males. The targeted number of legal males to harvest is multiplied by an estimate of the average weight of legal males to determine a preseason GHL expressed in pounds”.

The minimum threshold for the Pribilof District blue king crab fishery, in numbers of male crabs over 119 mm, is 0.77 million. While not specifically addressing Pribilof District red king crabs, the blue crab harvest strategy set out in this document is also applied to red king crabs in the Pribilof District.

The GHL for the Pribilof District king crab fishery is calculated annually and is based on population estimates derived from the National Marine Fisheries Service (NMFS) trawl survey, conducted each summer in the Bering Sea. Red and blue king crab GHLs are made available to the public by ADF&G news release prior to September 1st. News releases are faxed or emailed to all major processors and industry groups active in Bering Sea crab fisheries.

Based on the 1999 survey, the abundance index for legal male blue king crabs (>134 mm) was 0.45 million animals, representing a 46% reduction from results of the 1998 survey. This continues to be well below the long term average of 2.3 million animals. Abundance of pre-recruit (110-134 mm) male blue king crabs declined from 0.41 million animals in 1998 to 0.22 in 1999, a 46% reduction. Abundance of female blue king crabs in 1999 increased 8% from levels observed in 1998, going from 2.3 to 2.5 million animals. However, changes in female abundance of this magnitude are considered insignificant, as female blue king crab estimates are considered somewhat imprecise due to the rocky, untrawlable habitat which these crabs prefer.

The abundance index for legal male red king crabs (>134 mm) in the Pribilof District for 1999 was 1.1 million animals. This is a significant increase from the 0.4 million animals observed in 1998. Female red king crab abundance increased even more dramatically, going from one million animals to an estimate of over nine million animals. However, estimates of red king crab abundance are considered imprecise, as most red king crabs captured during the Pribilof District portion of the Bering Sea survey were taken at only one sampling station.

Based on continued declines in blue king crab abundance and the high degree of imprecision associated with the survey estimate of red king crab abundance, a GHF was not established for Pribilof District red and blue king crab and the fishery will remain closed for the 1999 season.

## **FISHERIES MANAGEMENT AND VOLUNTEER CATCH REPORTING**

In most years the Pribilof District red and blue king crab fisheries are managed inseason. However, when the GHF is unusually low and/or the number of vessels is relatively high, a fishery closure is determined based on the total number of participants and historic fishery performance. In such situations the fishery closure is announced shortly after the fishery begins, and after total fishing effort is accurately determined.

Inseason management is accomplished by using data from the voluntary catch reports of participating vessel operators. These reports, sent by means of marine satellite telex or over single side band radio (frequency 4125), are received and processed daily by ADF&G staff in Dutch Harbor. Vessel operators report number of pots hauled and number of legal crabs harvested for each 24 hour period. Inseason management is preferred because management decisions are based on actual, real-time fishery performance data. Further, fishery managers can factor in prevailing weather conditions which can influence fishery performance and the resulting harvest. Any validly registered vessel may participate in the voluntary inseason catch reporting program and all vessel operators are asked to participate at the time of tag purchase, vessel registration and/or tank inspection. Since the reopening of this area in 1993, as many as 86% of vessels participating in the Pribilof District red and blue king crab fishery have participated in the voluntary daily inseason catch reporting program.

## **DEPARTMENT CONTACTS**

Contacts for ADF&G in Dutch Harbor are Rance Morrison, Area Management Biologist; Forrest Bowers, Assistant Area Management Biologist; and Elizabeth Wilson, lead dockside inspector and sampler. The ADF&G phone number in Dutch Harbor is (907) 581-1239; the fax number is (907) 581-1572.

Department contacts in Kodiak are Wayne Donaldson, Regional Shellfish Biologist; Dave Jackson, Kodiak Island/Alaska Peninsula Area Shellfish Management Biologist; and Mike Ruccio, Assistant Area Shellfish Biologist. The ADF&G phone number in Kodiak is (907) 486-1840; the fax number is (907) 486-1824.

## **LITERATURE CITED**

- Alaska Department of Fish and Game (ADF&G). 1999. 1999-2000 Commercial Shellfish Regulations.
- Pengilly, D., and D. Schmidt. 1995. Harvest Strategy for Kodiak and Bristol Bay Red King Crab and St. Matthew Island and Pribilof Blue King Crab. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Special Publication Number 7, Juneau, Alaska.

Table 1. Bering Sea, Area Q, Pribilof District commercial red and blue king crab harvest, 1973/74-1998.

| Year <sup>a</sup>    | Number of |          | Harvest <sup>b</sup><br>(pounds) | Number of Pots        |         | CPUE <sup>c</sup> | Average            |                             | Deadloss<br>(pounds) |
|----------------------|-----------|----------|----------------------------------|-----------------------|---------|-------------------|--------------------|-----------------------------|----------------------|
|                      | Vessels   | Landings |                                  | Registered            | Pulled  |                   | Weight<br>(pounds) | Length <sup>d</sup><br>(mm) |                      |
| 1973/74              | 8         | 13       | 174,420                          |                       | 6,814   | 26                | 7.3                | N/A                         | 0                    |
| 1974/75              | 70        | 101      | 908,072                          |                       | 45,518  | 20                | 7.8                | 157.8                       | 0                    |
| 1975/76              | 20        | 54       | 314,931                          |                       | 16,297  | 19                | 7.7                | 159.1                       | 0                    |
| 1976/77              | 47        | 113      | 855,505                          |                       | 71,738  | 12                | 7.7                | 158.1                       | 0                    |
| 1977/78              | 34        | 104      | 807,092                          |                       | 106,983 | 8                 | 7.9                | 158.9                       | 159,269              |
| 1978/79              | 58        | 154      | 797,364                          |                       | 101,117 | 8                 | 8.1                | 159.3                       | 63,140               |
| 1979/80              | 46        | 115      | 815,557                          |                       | 83,527  | 10                | 7.7                | 155.9                       | 284,555              |
| 1980/81              | 110       | 258      | 1,497,101                        | 31,636                | 167,684 | 9                 | 7.3                | 155.7                       | 287,285              |
| 1981/82              | 99        | 312      | 1,202,499                        | 25,408                | 176,168 | 7                 | 7.6                | 158.2                       | 250,699              |
| 1982/83              | 122       | 281      | 587,908                          | 34,429                | 127,728 | 5                 | 7.5                | 159.8                       | 51,703               |
| 1983/84              | 126       | 221      | 276,364                          | 36,439                | 86,428  | 3                 | 7.9                | 159.9                       | 4,562                |
| 1984/85              | 16        | 25       | 40,427                           | 3,122                 | 15,147  | 3                 | 7.6                | 155.5                       | 0                    |
| 1985/86              | 26        | 49       | 77,607                           | 6,038                 | 23,483  | 3                 | 6.9                | 146.5                       | 7,500                |
| 1986/87              | 16        | 25       | 36,988                           | 4,376                 | 15,800  | 2                 | 7.0                | N/A                         | 5,450                |
| 1987/88              | 38        | 68       | 95,131                           | 9,594                 | 40,507  | 2                 | 7.4                | 152.7                       | 9,910                |
| 1988/89              |           |          |                                  | NO COMMERCIAL FISHERY |         |                   |                    |                             |                      |
| 1989/90              |           |          |                                  | NO COMMERCIAL FISHERY |         |                   |                    |                             |                      |
| 1990/91              |           |          |                                  | NO COMMERCIAL FISHERY |         |                   |                    |                             |                      |
| 1991/92 <sup>e</sup> |           |          |                                  | NO COMMERCIAL FISHERY |         |                   |                    |                             |                      |
| 1992/93              |           |          |                                  | NO COMMERCIAL FISHERY |         |                   |                    |                             |                      |
| 1993 <sup>f</sup>    | 112       | 135      | 380,217                          | 4,860                 | 35,942  | 11                | 6.9                | 154.4                       | 0                    |
| 1994 <sup>f</sup>    | 104       | 121      | 167,520                          | 4,675                 | 28,976  | 6                 | 8.0                | 162.1                       | 2,929                |
| 1995 <sup>f</sup>    | 117       | 151      | 107,521                          |                       | 33,531  | 3                 | 8.1                | 162.5                       | 15,316               |
| 1995 <sup>g</sup>    | 119       | 152      | 172,987                          |                       | 34,721  | 5                 | 7.3                | N/A                         | 46,263               |
| 1995 <sup>h</sup>    | 127       | 162      | 280,508                          | 5,400                 | 37,643  | 8                 | NA                 |                             | 61,579               |
| 1996 <sup>f</sup>    | 66        | 90       | 25,383                           |                       | 29,425  | <1                | 7.9                | 161.0                       | 319                  |
| 1996 <sup>g</sup>    | 66        | 92       | 127,676                          |                       | 30,607  | 4                 | 7.3                | 153.1                       | 14,997               |

-Continued-

Table 1. (Page 2 of 2)

| Year <sup>a</sup> | Number of |          |                    | Harvest <sup>b</sup><br>(pounds) | Number of Pots |        | Average           |                    |                             | Deadloss<br>(pounds) |
|-------------------|-----------|----------|--------------------|----------------------------------|----------------|--------|-------------------|--------------------|-----------------------------|----------------------|
|                   | Vessels   | Landings | Crabs <sup>b</sup> |                                  | Registered     | Pulled | CPUE <sup>c</sup> | Weight<br>(pounds) | Length <sup>d</sup><br>(mm) |                      |
| 1996 <sup>h</sup> | 66        | 92       | 153,059            | 1,137,336                        | 2,730          | 60,032 | 3                 | 7.4                |                             | 15,316               |
| 1997 <sup>f</sup> | 53        | 110      | 90,641             | 756,818                          |                | 28,458 | 3                 | 8.4                | 164.3                       | 18,807               |
| 1997 <sup>g</sup> | 51        | 105      | 68,603             | 512,374                          |                | 27,652 | 3                 | 7.5                | 163.6                       | 16,747               |
| 1997 <sup>h</sup> | 53        | 110      | 159,244            | 1,269,192                        | 2,230          | 30,400 | 5                 | 8.0                |                             | 35,554               |
| 1998 <sup>f</sup> | 57        | 84       | 68,129             | 510,365                          |                | 23,381 | 3                 | 7.5                | 158.8                       | 8,703                |
| 1998 <sup>g</sup> | 57        | 83       | 68,513             | 516,996                          |                | 22,965 | 3                 | 7.5                | 156.1                       | 22,289               |
| 1998 <sup>h</sup> | 57        | 84       | 136,642            | 1,027,361                        | 2,398          | 23,381 | 6                 | 7.5                |                             | 30,992               |

<sup>a</sup>Blue king crab, 1973 - 1988.

<sup>b</sup>Deadloss included.

<sup>c</sup>Defined as catch of legal crabs per pot.

<sup>d</sup>Carapace length.

<sup>e</sup>10,869 pounds illegal red king crab harvested.

<sup>f</sup>Red king crab.

<sup>g</sup>Blue king crab.

<sup>h</sup>Blue and red king crab fisheries combined.

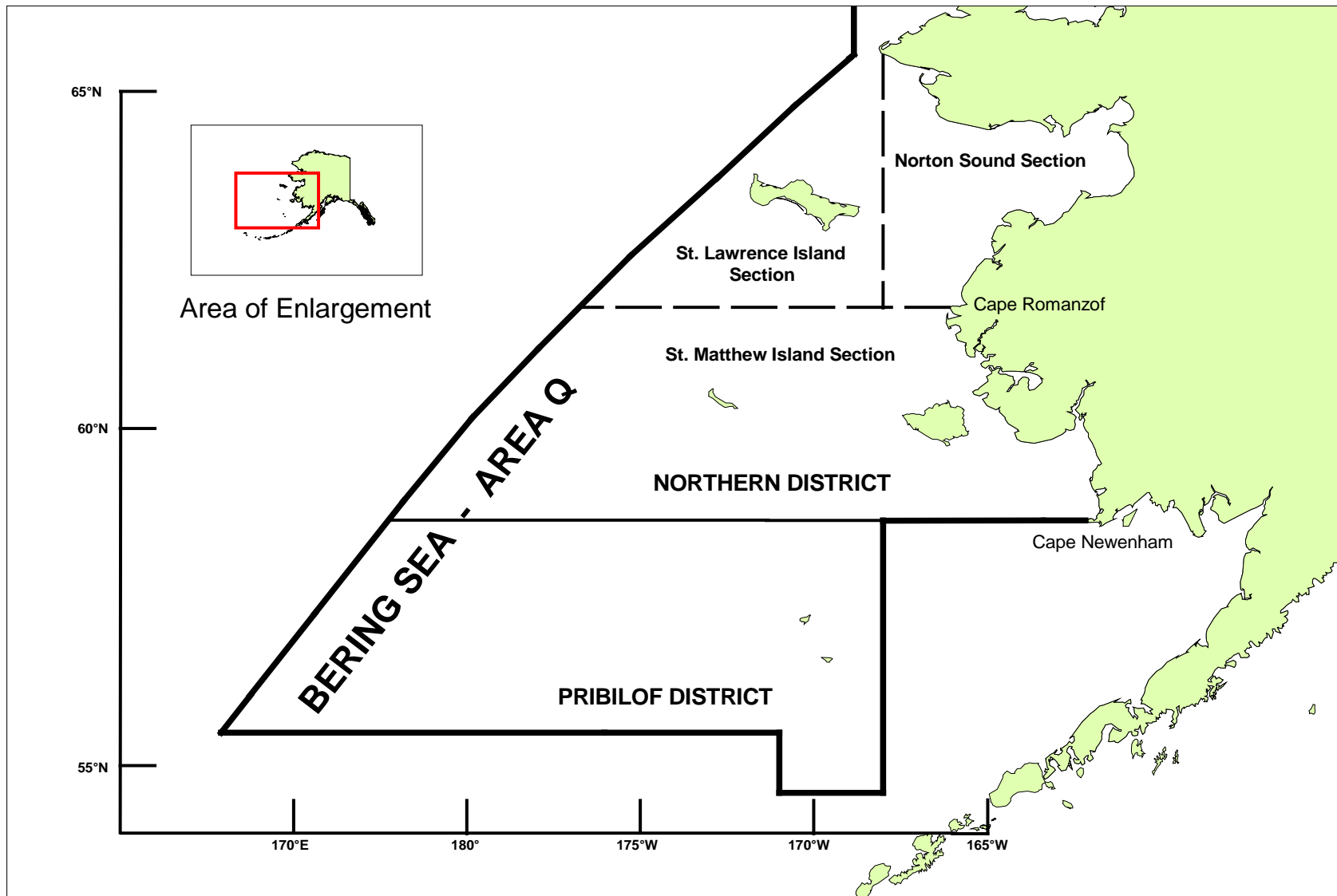


Figure 1. Bering Sea, Area Q, king crab area, showing districts and sections.

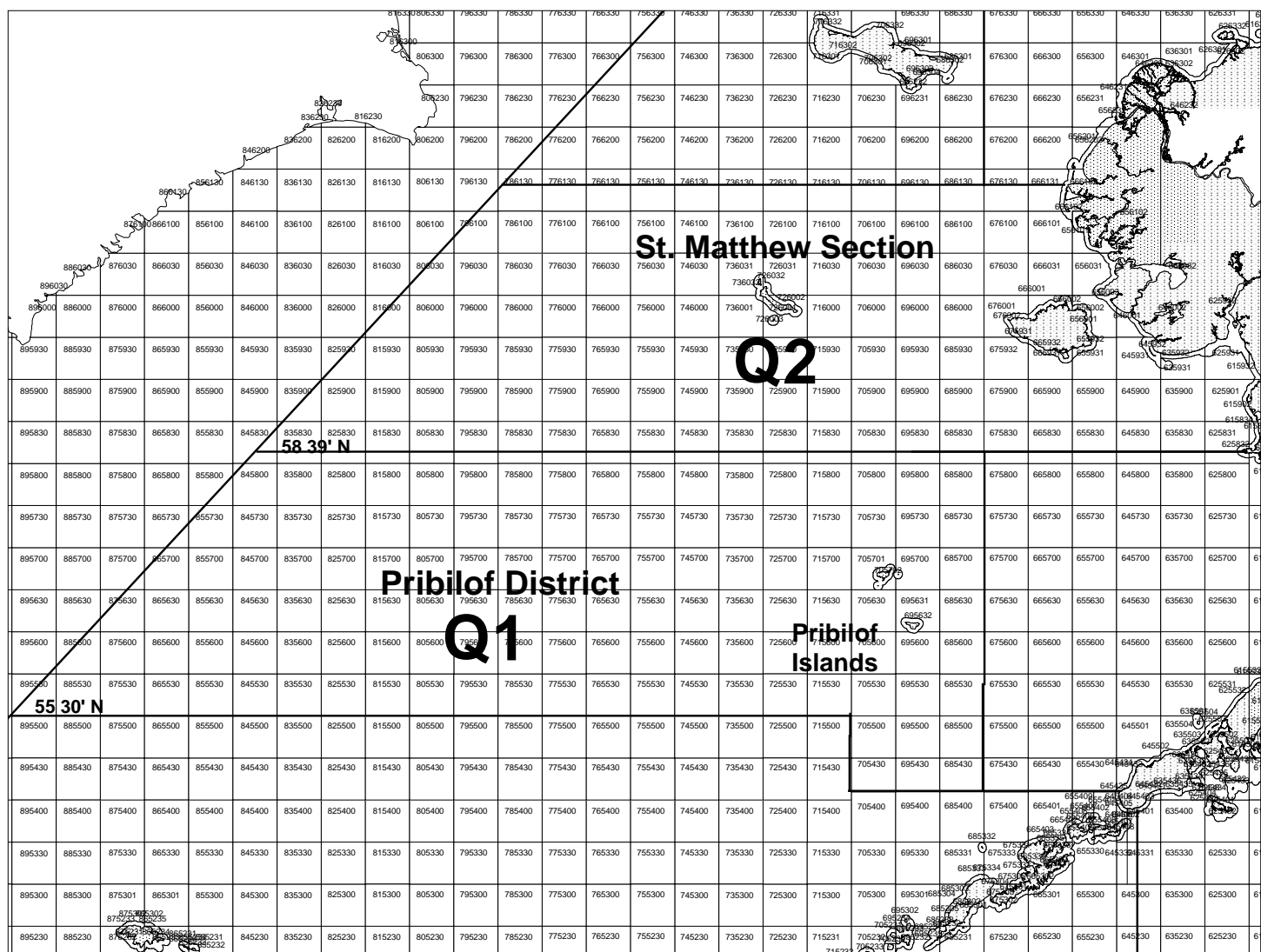


Figure 2. Statistical area map of the Pribilof District and the Saint Matthew Island Section of the Northern District of the Bering Sea king crab management area.

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